

CLAIM LISTING

1. (currently amended) An apparatus for data transmission within a spread-spectrum communication system, the apparatus comprising:

a long-code scrambler having data symbols as an input and outputting the data symbols scrambled with a long code; and

a modulator having the scrambled data symbols as an input and outputting modulated scrambled data symbols, wherein the long-code scrambler comprises:

a long code generator outputting a long code;

a decimator having the long code as an input and outputting a decimated long code; and

a permuter having the decimated long code as an input and outputting a plurality of permuted, decimated long codes each having a same length as the decimated long code.

2. (canceled)

3. (canceled)

4. (canceled)

5. (currently amended) An apparatus for reception of transmitted signals within a spread-spectrum communication system, the apparatus comprising:

a demodulator having a transmitted signal as an input and outputting a demodulated signal; and

a long-code despreaders having the demodulated signal as an input and outputting despread data, wherein the long-code descrambler comprises:

a long code generator outputting a long code;

a decimator having the long code as an input and outputting a decimated long code; and

a permuter having the decimated long code as an input and outputting a plurality of permuted, decimated long codes each having a same length as the decimated long code.

6. (canceled)

7. (canceled)

8. (currently amended) A method for data transmission, the method comprising the steps of:

- receiving symbols by a long-code scrambler;
- long-code scrambling the received symbols to produce scrambled symbols; and
- modulating the scrambled symbols, wherein long-code scrambling comprises:

- generating a long code;

- generating a decimated long code using the long code; and

- permuting the decimated long code to produce ~~the scrambled symbols~~ a plurality of permuted, decimated long codes each having a same length as the decimated long code.

9. (canceled)

10. (canceled)

11. (currently amended) A method for data reception comprising the steps of:

- receiving a transmitted signal and demodulating the transmitted signal to produce a demodulated signal;

- long-code descrambling the demodulated signal, wherein long-code descrambling comprises:

- generating a long code;

- generating a decimated long code using the long code; and

- permuting the decimated long code to produce a plurality of permuted, decimated long codes each having a same length as the decimated long code.

12. (canceled)

13. (currently amended) An apparatus comprising:

- a long code generator outputting a long code;

- a decimator having the long code as an input and outputting a decimated long code; and

- a permuter having the decimated long code as an input and outputting a plurality of permuted, decimated long codes each having a same length as the decimated long code.

14. (original) The apparatus of claim 13 further comprising:

- a plurality of scramblers having the plurality of permuted long codes as an input and outputting a plurality of scrambled data streams.

15. (original) The apparatus of claim 14 further comprising:

a plurality of quadrature amplitude modulators, each having a scrambled data stream as an input and outputting a modulated data stream.

16. (previously presented) The apparatus of claim 1 wherein the modulator maps the scrambled data symbols to a constellation.

17. (previously presented) The apparatus of claim 16 wherein the modulator is a quadrature amplitude modulator.

18. (previously presented) The apparatus of claim 5 wherein the demodulator is a quadrature amplitude demodulator.

19. (previously presented) The method of claim 8 wherein the step of modulating the scrambled symbols comprises the step of mapping the symbols to a constellation.

20. (previously presented) The method of claim 19 wherein the step of modulating the scrambled symbols comprises the step of quadrature amplitude modulating the scrambled symbols.

21. (previously presented) The method of claim 11 wherein the step of receiving and demodulating the transmitted signal comprises the step of receiving and quadrature amplitude demodulating the received signal.